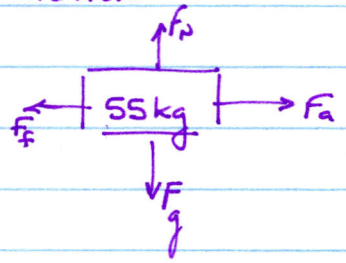
FRICTION

#1



a) $\vec{F}_{NET} = 0N$

$\therefore F_f = F_a = 38N$

b) $\vec{F}_{NET} = 0N$

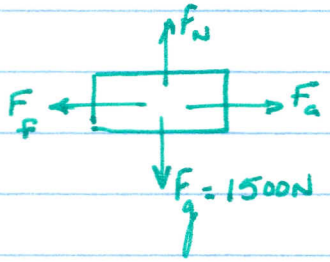
$\therefore F_N = F_g = mg = 539N$

c) $F_s = \mu_s F_N$

$38 = \mu_s (539)$

$\mu_s = 0.0705$

#2



$\mu_s = 1.2$

$F_N = 1500N$

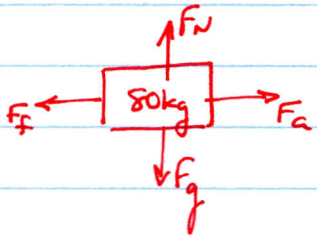
$F_{NET} = 0\ N$

$\therefore F_a = F_f$

$\because F_f = \mu_s F_N$

$= 1800N$

#3



$F_f = \mu_K F_N$

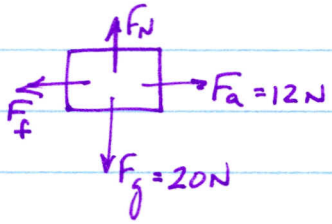
$= \mu_K mg$

$= 0.14(80)(9.8)$

$= 110\ N$

$F_N = mg$.

#4



(a) $\mu_s = ?$

$F_N = 20N$, $\because F_{NET} = 0$

$F_f = F_a = 12N$ $\because F_{NET} = 0$

$F_f = \mu_s F_N$

$12 = \mu_s\ 20$

$\mu_s = 0.60$

(b) TWO BOOKS HAS $F_g = 40N$

μ_s REMAINS THE SAME

$F_f = ?$

$F_f = \mu_s F_N$

$= 0.6(40)$

$= 24N$

#5 $m = 1000\,kg$

$F_a = 450N$

$\because F_{NET} = 0$

$\therefore F_f = 450N$

$\mu_s = ?$

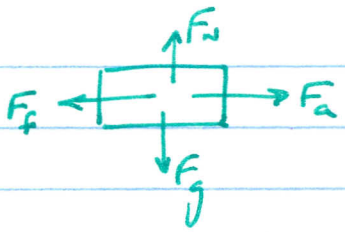
$F_f = \mu_s F_N$

$\because F_N = F_g$

$\therefore F_f = \mu_s mg$

$450 = \mu_s (1000)(9.8)$

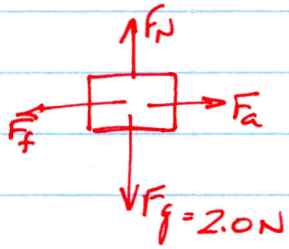
$\mu_s = 0.0459$



#6 TEXT QUESTIONS — ANSWERS IN MARGIN

— EMAIL ME IF ASSISTANCE IS NEEDED

#7



$F_{NET} = 8.0N$

(a) $\mu_K = 1.50$

$F_f = ?$

$F_N = 2.0N$

$F_f = \mu_K F_N$

$= 1.50(2.0)$

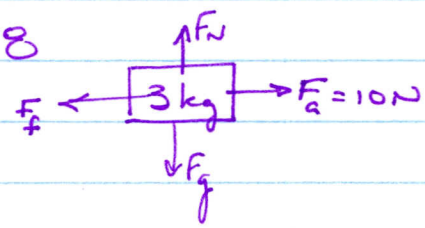
$= 3.0N$

(b) $\vec{F}_{NET} = \vec{F}_a + \vec{F}_f$

$8.0 = \vec{F}_a - 3.0$

$\vec{F}_a = 11.0N$

#8



$\mu_s = 0.40$

$F_N = F_g = mg = 29.4N$

$F_{f_s} = \mu_s F_N$

$= 11.76N$ ← This is the maximum static friction possible.

As $F_a = 10N$ + this is less than F_{f_s}, the object won't start to move